process invention, the restriction between the elected product and rejoined process will be withdrawn. Thus, Applicants believe rejoinder of withdrawn Claims 23-25 is proper.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated: July 21, 2008

By: _____
Michael J. Schmidt, 34,007

HARNESS, DICKEY & PIERCE, P.L.C.
P.O. Box 828
Bloomfield Hills, Michigan 48303
(248) 641-1600

MJS/pmg

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For further details on Legal-Status, visit the following link.PAJ help(1-5)

General translation of allowed JP claims:

(＊Reference numerals are included only for reference purpose)

1. A refrigerant evaporator for performing heat exchange between a refrigerant and an external fluid flowing outside of the refrigerant evaporator to be cooled, the refrigerant evaporator comprising:

a core portion (22A, 22B) having a first core section and a second core section, the first core section and the second core section being arranged in a core width direction (D1) that is substantially perpendicular to a flow direction of the external fluid, the core portion including a plurality of tubes (20, 20A, 20B) arranged in at least one row in the core width direction, the tubes defining first passages (T1) in the first and second core sections and second passages (T2) in the first and second core sections, the first passages and the second passages being configured such that the refrigerant flows in opposite directions, one of the first passages and the second passages being disposed upstream of the other with respect to the flow direction of the external fluid;

an introducing portion (18A) connected to the core portion and in communication with the first passages for introducing the refrigerant in the first passages;

a discharging portion (18B) connected to the core portion and in communication with the second passages for discharging the refrigerant from the second passages, the discharging portion being arranged one of upstream and downstream of the introducing portion with respect to the flow direction of the external fluid;

a collecting portion (16A) connected to the core portion, the collecting portion including a first collecting space (16AL) and a second collecting space (16AR), the first collecting space and the second collecting space being arranged

in the core width direction, the first collecting space being in communication with the first passages (T1L) of the first core section, and the second collecting space being in communication with the first passages (T1R) of the second core section;

a distributing portion (16B) connected to the core portion, the distributing portion including a first distributing space (16BL) and a second distributing space (16BR), the first distributing space and the second distributing space being arranged in the core width direction, the first distributing space being in communication with the second passages (T2L) of the first core section, and the second distributing space being in communication with the second passages (T2R) of the second core section; and

a communicating part (28, 28A) including a first communicating portion and a second communicating portion, wherein

the first communicating portion is disposed to allow communication between the first collecting space (16AL) and the second distributing space (16BR) and the second communicating portion is disposed to allow communication between the second collecting space (16AR) and the first distributing space (16BL) such that the communicating part provides an intersectional part for intersecting flows of the refrigerant with respect to the core width direction,

the collecting portion (16A) and the distributing portion (16B) are provided by tank portions, one of the tank portions is arranged downstream of the other with respect to the flow direction of the external fluid, and

the tank portions are divided at middle positions thereof, and the communicating part (28, 28A) is disposed at the middle positions of the tank portions.

2. A refrigerant evaporator for performing heat exchange between a

refrigerant and an external fluid flowing outside of the refrigerant evaporator to be cooled, the refrigerant evaporator comprising:

a core portion (22A, 22B) having a first core section and a second core section, the first core section and the second core section being arranged in a core width direction (D1) that is substantially perpendicular to a flow direction of the external fluid, the core portion including a plurality of tubes (20, 20A, 20B) arranged in at least one row in the core width direction, the tubes defining first passages (T1) in the first and second core sections and second passages (T2) in the first and second core sections, the first passages and the second passages being configured such that the refrigerant flows in opposite directions, one of the first passages and the second passages being disposed upstream of the other with respect to the flow direction of the external fluid;

an introducing portion (18A) connected to the core portion and in communication with the first passages for introducing the refrigerant in the first passages;

a discharging portion (18B) connected to the core portion and in communication with the second passages for discharging the refrigerant from the second passages, the discharging portion being arranged one of upstream and downstream of the introducing portion with respect to the flow direction of the external fluid;

a collecting portion (16A) connected to the core portion, the collecting portion including a first collecting space (16AL) and a second collecting space (16AR), the first collecting space and the second collecting space being arranged in the core width direction, the first collecting space being in communication with the first passages (T1L) of the first core section and the second collecting space being in communication with the first passages (T1R) of the second core section;

a distributing portion (16B) connected to the core portion, the distributing

portion including a first distributing space (16BL) and a second distributing space (16BR), the first distributing space and the second distributing space being arranged in the core width direction, the first distributing space being in communication with the second passages (T2L) of the first core section, and the second distributing space being in communication with the second passages (T2R) of the second core section; and

a communicating part (16C) including a first communicating portion and a second communicating portion, wherein

the first communicating portion is disposed to allow communication between the first collecting space (16AL) and the second distributing space (16BR) and the second communicating portion is disposed to allow communication between the second collecting space (16AR) and the first distributing space (16BL), such that the communicating part provides an intersectional part for intersecting flows of the refrigerant with respect to the core width direction,

the collecting portion (16A) and the distributing portion (16B) are provided by tank portions, one of the tank portions is arranged downstream of the other with respect to the flow direction of the external fluid,

the communicating part (16C) is provided by a connecting tank member arranged between the tank portions,

the connecting tank member (16C) is divided into a first space and a second space, the first communicating portion is provided by the first space, and the second communicating portion is provided by the second space.

3. A refrigerant evaporator for performing heat exchange between a refrigerant and an external fluid flowing outside of the refrigerant evaporator to be cooled, the refrigerant evaporator comprising:

a core portion (22A, 22B) having a first core section and a second core section, the first core section and the second core section being disposed in a core width direction (D1) that is substantially perpendicular to a flow direction of the external fluid, the core portion including a plurality of tubes (20, 20A, 20B) arranged in the core width direction, the tubes defining first passages (T1) in the first and second core sections and second passages (T2) in the first and second core sections, one of the first passages and the second passages being disposed upstream of the other with respect to the flow direction of the external fluid;

an introducing portion (18A) connected to the core portion and in communication with the first passages for introducing the refrigerant in the first passages;

a discharging portion (18B) connected to the core portion and in communication with the second passages for discharging the refrigerant from the second passages;

a collecting portion (16A, 16A1, 16A2) connected to the core portion, the collecting portion including a first collecting space (16AL) and a second collecting space (16AR), the first collecting space and the second collecting space being arranged in the core width direction, the first collecting space being in communication with the first passages (T1L) of the first core section and the second collecting space being in communication with the first passages (T1R) of the second core section;

a distributing portion (16B, 16B1, 16B2) connected to the core portion, the distributing portion including a first tank portion (16B1) defining a first distributing space and a second tank portion (16B2) defining a second distributing space, one of the first and second tank portions being disposed upstream of the other with respect to the flow direction of the external fluid, the first distributing space being in communication with the second passages (T2L) of the first core section, and

the second distributing space being in communication with the second passages (T2R) of the second core section; and

a communicating part including a first communicating portion (32A) and a second communicating portion (32B), wherein

the first communicating portion (32A) is disposed to allow communication between the first collecting space (16AL) and the second distributing space (16B2), and

the second communicating portion (32B) is disposed to allow communication between the second collecting space (16AR) and the first distributing space (16B1).

4. The refrigerant evaporator according to claim 3, wherein

one of the collecting portion (16A) and the distributing portion (16B) is constructed of a third tank portion (16A, 16B) and the other is constructed of the first and second tank portions (16A1, 16A2, 16B1, 16B2), the third tank portion being wider than one of the first and second tank portions with respect to the low direction of the external fluid,

the third tank portion is provided with a separation plate (24, 24c) therein for dividing a space inside of the third tank portion with respect to the core width direction, and

the first communicating portion and the second communicating portion (32A, 32B) are disposed at opposite ends of the tank portions with respect to the core width direction.

5. The refrigerant evaporator according to claim 4, wherein

the third tank portion (16A) is in communication with the first passages (T1) and is disposed downstream of the first and second tank portions (16B1,

16B2) with respect to the flow direction of the external fluid.

6. The refrigerant evaporator according to any one of claims 1 to 5, wherein each of the tubes (20) has a flat shape and forms a plurality of passage spaces (20a) therein, and

the first passages (T1) and the second passages (T2) are defined by the passage spaces (20a) in the tube.

7. A refrigerant evaporator for performing heat exchange between a refrigerant and an external fluid flowing outside of the refrigerant evaporator to be cooled, the refrigerant evaporator comprising:

a core portion (22) having a first core section and a second core section, the first core section and the second core section being disposed in a core width direction (D1) that is substantially perpendicular to a flow direction of the external fluid, the core portion including first tubes (20A) defining first passages through which the refrigerant flows and second tubes (20B) defining second passages through which the refrigerant flows after passed through the first passages, the first tubes and the second tubes being arranged in a row such that a set of the first tubes and a set of the second tubes are alternately arranged in the core width direction, and each set including a predetermined number of tubes;

an introducing portion (16A) connected to the core portion, the introducing portion being in communication with the first tubes for introducing the refrigerant into the first passages;

a discharging portion (16B) connected to the core portion, the discharging portion being in communication with the second tubes for discharging the refrigerant from the second passages;

a collecting portion (18A) connected to the core portion; and

a distributing portion (18B) connected to the core portion, wherein

the collecting portion and the distributing portion are constructed of a first tank portion and a second tank portion, one of the first tank portion and the second tank portion being arranged upstream of the other with respect to the flow direction of the external fluid,

the first tank portion forms first inflow holes (39cL) to allow communication between the first tank portion and the first tubes (20A) of the first core section and first outflow holes (39dR) to allow communication between the first tank portion and the second tubes (20B) of the second core section,

the second tank portion forms second inflow holes (39cR) to allow communication between the first tubes (20a) of the second core section and the second tank portion and second outflow holes (39dL) to allow communication between the second tank portion and the second tubes (20B) of the first core section.

8. The refrigerant evaporator according to any one of claims 1 to 7, wherein

the core portion (20, 20A, 20B) is arranged such that the tubes (20, 20A, 20B) are layered in a vertical direction.

9. The refrigerant evaporator according to any one of claims 1 to 7, wherein

the introducing portion (18A) is provided with a plurality of inlets for introducing the refrigerant into the introducing portion.

10. The refrigerant evaporator according to any one of claims 1 to 7, wherein

the core portion (22, 22A, 22B) forms a multi-flow-type core in which the tubes (20, 20A, 20B) are arranged such that the refrigerant flows in the plurality of tubes at the same time.

11. The refrigerant evaporator according to any one of claims 1 to 7, wherein the tubes (20, 20A, 20B) are in forms of serpentine and the core portion forms a multiple-pass, serpentine-type core.

12. The refrigerant evaporator according to any one of claims 1 to 7, wherein the introducing portion, the discharging portion, the collecting portion and the distributing portion (16A, 16B, 18A, 18B) are provided by tank portions.

13. The refrigerant evaporator according to any one of claims 1 to 7, wherein the core portion (22, 22A, 22B) is disposed such that the refrigerant flows in the first passages (T1) in an upward direction.

14. A refrigerant cycle comprising an internal heat exchanger (50) and the refrigerant evaporator according to any one of claims 1 to 7.

15. The refrigerant cycle according to claim 14, further comprising an ejector (68).

16. The refrigerant cycle according to claim 14 or 15, further comprising a pressure-reducing device (65) and a gas-liquid separator (69), wherein the gas-liquid separator (69) is arranged upstream of one of the pressure-reducing device (65) and the refrigerant evaporator (64) with respect to a flow of the refrigerant.

17. An air conditioner comprising:

a refrigerant circuit;

the refrigerant evaporator (44) according to claim 7; and

a switching valve (42) disposed on the refrigerant circuit, wherein

the switching valve is capable of switching a flow direction of the refrigerant in the circuit such that the refrigerant evaporator is capable of being used as an evaporator in a cooling operation and used as a radiator in a heating operation.